[0101]   What is claimed is:

1   1.   A system for an integrated manufacturing execution system, MES, that unifies the

2   production data for a manufactured lot that moves from a current production line to

3   different production lines, comprising:

4   a database recording data pertaining to, a manufacturing lot ID, a current MES

5   associated with the lot ID, MES rules and transactions performed to manufacture the lot

6   ID;

7   a computer of the current production line, the computer communicating with the

8   database and with production line MESs of each of the different production lines to

9   which the lot ID is moved to perform one of the transactions;

10   the database supplying each of the different production lines with the MES rules

11   of the current production line;

12   the database recording transaction data in the current MES and

13   a memory storing the data recorded by the database.

1   2.   The system as in claim 1 wherein, the database records transaction data from each

2   of the different production lines, the transaction data corresponding to the MES rules of

3   the current MES.

1   3.   The system as in claim 1 wherein, the database records transaction data from each

2   of the different production lines, the transaction data including; track-in, track-out data,

3   and processing data and measurement data, which correspond to the MES rules of the

4   current MES.

1   4.   The system as in claim 1, and further comprising:

2   a production computer of each of the different production lines supplying the

3   transaction data to the database.

1   5.   The system as in claim 1, and further comprising:

2   the database recording a tool reserve to move the lot ID to a reserved tool of a

3   different production line for the next process step.

1   6.   A method for manufacturing capacity utilization with a unified MES, comprising

2   the steps of

3   checking capacity utilization status of multiple tools for performing the next

4   process step on a manufacturing lot;

5   reserving one of the tools to perform the next process step;

6   transferring the manufacturing lot from a current production line to a backup

7   production line having the reserved one of the tools; and

8   performing the next process step in the backup production line, and collecting

9   process data and measurement data, which correspond to the MES rules of the current

10   production line.

1   7.   The method as in claim 6, further comprising the step of:

2   storing the process data and manufacturing data of the manufacturing lot in the

3   current production line MES.

1   8.   The method as in claim 6, further comprising the steps of:

2   defaulting the manufacturing lot to the next tool in the backup production line for

3   the next process step.

1   9.   The method as in claim 6, further comprising the steps of:

2   defaulting the manufacturing lot to the next tool in the backup production line for

3   the next process step;

4   checking the capacity utilization of all tools to perform the next process step; and

5   reserving a selected one of the tools in a different backup production line to

6   perform the next process step.

1   10.   The method as in claim 6, further comprising the steps of:

2   defaulting the manufacturing lot to the next tool in the backup production line for

3   the next process step;

4   checking the capacity utilization of all tools to perform the next process step; and

5   reserving the tool of the current production line to perform the next process step.

6